

The Novocherkassk Polytechnic Institute is Fifty Years old

3-1-17/32

Professors A.G.Kobilev, A.V.Pek and G.M.Yefremov (economic minerals and geology of the Caucasus and the Donets Basin); Professor N.S.Tokarev and Ye.V.Posokhov (hydrogeology); Dotsent G.I.Popov (quaternary geology); Professor A.Ya. Berlovich (mine-surveying); Professor B.S.Belovidov (mine-electro-engineering); Professor V.G.Mikhaylov (mining machines), and of many others.

ASSOCIATION: Novocherkassk Polytechnic Institute imeni S.Ordzhonikidze (Novocherkasskiy politekhnicheskiy institut imeni S.Ordzhonikidze)

AVAILABLE: Library of Congress

Card 3/3

**AUTHORS:** Chechel', P. S., Antropov, L. I. 75-13-3-19/27

**TITLE:** Polarographic Determination of Formic Acid  
(Polyarograficheskoye opredeleniye murav'ino'y kisloty)

**PERIODICAL:** Zhurnal analiticheskoy khimii, 1958, Vol. 13, Nr 3,  
pp 354-359 (USSR)

**ABSTRACT:** In the present paper the polarographic behavior of formic acid is investigated. The measurements were made on a Geyrovskiy-polarograph of the type Y-301 the technical data of which are given in detail (analogous to reference 1). In weakly acid solutions polarograms of formic acid can be obtained. A 0,1n solution of potassium or sodium chloride acidified with hydrochloric acid is best suitable as medium. The reduction of formic acid begins at potentials of from -1,7 to -1,8 V (relative to a normal calomel electrode). where distinctly marked maxima occur in the polarographic curves in the domain of the limiting current. Due to this fact the polarographic behavior of formic acid has hitherto not yet been investigated. By means of the scale of "φ-potentials" set up by one of

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## Polarographic Determination of Formic Acid

75-13-3-19/27

the authors (Reference 2) compounds can be found the addition of which leads to a suppression of the polarographic maxima. " $\varphi$ -potential" denotes the displacement of the stationary potential of the zero charge of the electrode metal. The nature of the addition depends on the value of the  $\varphi$ -potential. Predominant adsorption at the electrodes is brought about for  $\varphi < 0$  by an addition of a cationic type, for  $\varphi > 0$  - an addition of an anionic type and for  $\varphi = 0$  - an addition of a molecular type. As in the polarographic investigation formic acid is  $\varphi < 0$  (Reference 3); the authors sought additions of a cationic type. Tribenzylamine  $(C_6H_5CH_2)_3N$  proved to be best suitable for this purpose.

The formation of maxima can be completely suppressed, if some drops of a saturated tribenzylamine solution are added to 10 ml of a solution which does not contain more than 0.1 gram-mol/ liter of formic acid. On this occasion the pH-value of the solution shall be 2-4. For every pH-value exists a maximum concentration of formic acid at which normal polarograms are obtained. An increase in concentration of formic acid above this value, or the

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## Polarographic Determination of Formic Acid

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use of solutions with  $p_H < 2$  does not lead to reproducible results. In solutions with  $p_H > 4$  a high concentration of formic acid is needed for maintaining a sufficiently high limiting current, where tribenzylamine does no longer suppress the maxima. The amount of the entire limiting current increases with the concentration of formic acid and the hydrogen ions, as the reduction of formic acid is accompanied by a reduction process of hydrogen ions. The entire limiting current therefore consists of the sum of these two limiting currents. The portion of the limiting current of the reduction of hydrogen ions decreases with increasing pH-value, and already at pH 3 the entire limiting current is entirely determined by the concentration of formic acid. A working prescription for the quantitative polarographic determination of formic acid and its salts in solutions was worked out; it is given in detail. The presence of formaldehyde disturbs, as it prevents the suppression of the polarographic maxima of formic acid.

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Polarographic Determination of Formic Acid

75-13-3-19/27

There are 9 figures and 3 references, 2 of which are Soviet.

ASSOCIATION: Novocherkasskiy politekhnicheskiy institut im. S. Ordzhonikidze  
(Novocherkassk Polytechnical Institute imeni S. Ordzhonikidze)

SUBMITTED: April 17, 1957

J. Formic acid--Determination

Card 4/4

ANTROPOV, L.I.; GRIGOR'YEV, V.P.; PETRENKO, A.T.

Utilising data of electrocapillary measurements for investigating  
inhibitors of acid corrosion of metals. Zhur. prikl. khim. 31  
no.10:1497-1503 O '58. (MIRA 12:1)

1. Novecherkasskiy politekhnicheskiy institut imeni S. Ordshbnikidse.  
(Electrocapillary phenomena)  
(Corrosion and anticorrosives)

ANTROPOV, L.I.; PETRENKO, A.T.

Corrosion of iron and zinc in 1 N.  $H_2SO_4$ . Zhur.prikl.khim. 31  
no.12:1849-1856 D '58. (MIRA 12:2)

1. Novocherkasskiy politekhnicheskii institut imeni S. Ordzhonikidze.  
(Iron--Corrosion) (Zinc--Corrosion) (Sulfuric acid)

CHECHEL', P.S.; ANTROPOV, L.I.

Electrochemical method of producing sodium formate from carbon dioxide and sodium amalgam. Zhur.prikl.khim. 31 no.12:1856-1861 D '58. (MIRA 12:2)

1. Novocherkasskiy politekhnicheskii institut imeni S. Ordzhonikidze.

(Sodium formate) (Carbon dioxide) (Amalgams)



AUTHORS: Listopadov, V. V., Antropov, L. I.

SDV/76-32-9-15/46

TITLE: On the Problem of the Electrolytic Reduction of Oxalic Acid  
(K voprosu ob elektroliticheskom vosstanovlenii  
shchavel'voy kisloty)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 9,  
pp 2042 - 2050 (USSR)

ABSTRACT: Platinum, nickel, cadmium, lead, thallium amalgam,  
and mercury were tried as electrodes, while a solution  
containing sulfuric acid, ammonium sulfate, and  
varying amounts of oxalic acid was used as the electrolyte.  
The experimental set-up is illustrated in figure 1.  
Polarization curves were plotted for the various electrodes  
used (Figs 1-8). Reduction of oxalic acid takes place  
at the cadmium, lead, thallium amalgam, and mercury  
electrodes. The velocity of the reduction is determined  
by the total concentration of oxalic acid and hydrogen  
ions, which are activated by the electrical double  
layer. The experimental results indicate the following  
formula:

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On the Problem of the Electrolytic Reduction of Oxalic Acid  
 Acid

SOV, 76-32-9-15/46

$$\xi = a' + b \lg \frac{j}{1 - \xi c_R^\beta} + b \text{ pH} \quad (\xi - \text{electrode potential,}$$

$j$  - current density,  $c_R$  - oxalic acid concentration).

The quantities  $a'$ ,  $b$ ,  $\beta$ , and  $\beta$  are constants for the particular cathodes used, and they are summarized in a table. The effectiveness depends upon the position of the zero point and upon the overvoltage of the hydrogen. The most effective are the cadmium electrodes. The effectiveness decreases with the transition to positively charged electrode surfaces, since then the poisoning effect of the oxalic acid becomes prominent. This effect can be attributed to the adsorption of the oxalic acid, or to the fact that by this adsorption sulfate ions are displaced from the electrical double layer, making the discharge of the hydroxyl ions more difficult. There are 12 figures, 1 table, and 36 references, 23 of which are Soviet.

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On the Problem of the Electrolytic Reduction of Oxalic Acid SOV/76-32-9-15/46

ASSOCIATION: Politekhnikheskiy institut, Novocherkassk (Novocherkassk Polytechnical Institute)

SUBMITTED: February 27, 1957

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5(4)

AUTHORS:

Kukoz, F. I., Antropov, L. I.

SOV/76-32-10-11/39

TITLE:

The Effect of Ultra-Sound on Electro-Reduction and Electro-Oxidation Processes (Vliyaniye ul'trazvuka na protsessy elektro-  
vosstanovleniya i elektroomisleniya) I. The Electro-Reduction  
of Nitro-Benzene on a Smooth Platinum Cathode (I. Elektro-  
vosstanovleniye nitrobenzola na gladkom platinovom katode)

PERIODICAL:

Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 10, pp 2294-2300  
(USSR)

ABSTRACT:

The effect of ultra-sound on redox reactions taking place on electrodes have been little investigated. Among the other effects of ultra-sound (Refs 17-21) a change in the mobility and the transfer number of ions which also must have an effect on the electrode reaction can take place. The reduction of nitro-benzene was carried out in an electrolyzer, and the diagram of this is given. A platelet of barium titanate (diameter 39 mm) served as source of the ultrasonic waves which was brought to the basic frequency (1,4 megas) by a 550-Watt radio generator. On the basis of earlier experiments a method of producing the Pt - W electrode was devised. The results of the

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SOV/76-32-10-11/39

The Effect of Ultra-Sound on Electro-Reduction and Electro-Oxidation Processes  
I. The Electro-Reduction of Nitro-Benzene on a Smooth Platinum Cathode

polarization measurements are given in the coordinates  $\xi$ ,  $\lg j$ . It was found that in 0,1 N  $H_2SO_4$ -solutions the potential of the Pt cathode varies linearly with the  $\lg j$  and that the straight line has an inclination of 0,075. The ultra-sound causes a change in the course of the curve by increasing its inclination to 0,08, and even more so at higher current densities. An addition of nitro-benzene effects a displacement of the potential into a more positive range. This effect becomes even stronger when ultra-sound is used. The depolarization without ultra-sound, for instance, amounts to 140 mV and with it to -175 mV. At certain current densities the potential changes abruptly to the negative side. The limiting current density of the process of electro-reduction of nitro-benzene is increased to the 10-15-fold by the ultra-sound. In contrast to another paper (Ref 5) no depolarizing effect on the hydrogen separation was observed. An increase of the constant  $a$  (from -0,470 to -0,510 and  $b$  (from 0,075 to 0,080) in the equation according to Tafel' was found. The modification of the potential by the ultra-sound near the zero charge of platinum is explained by a

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SOV/76-32-10-11/39

The Effect of Ultra-Sound on Electro-Reduction and Electro-Oxidation Processes  
I. The Electro-Reduction of Nitro-Benzene on a Smooth Platinum Cathode

pre-orientation of the polar nitro-benzene molecule in the double layer. The ultra-sound causes the orientation of the dipoles of the nitro-benzene in the boundary layer metal-solution. There are 3 figures, 2 tables, and 26 references, 11 of which are Soviet.

ASSOCIATION: Novocherkasskiy politekhnicheskii institut im. S. Ordzhonikidze  
Novocherkassk Polytechnical Institute imeni S. Ordzhonikidze)

SUBMITTED: April 29, 1957

Card 3/3

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 181 (USSR) SOV/137 58 11 23096

AUTHORS: Antropov, L. I., Grigor'yev, V. P., Petrenko, A. T.

TITLE: Utilization of the Data of Electrocapillary Measurements in the Investigation of Inhibitors of Acid Corrosion of Metals (Ispol'zovaniye dannykh elektrokapillyarnykh izmereniy pri issledovanii ingibitorov kislotnoy korrozii metallov)

PERIODICAL: Tr. Novocherk. politekhn. in-ta, 1958, Vol 69/83, pp 129-147

ABSTRACT: An investigation with the aid of the plotting of electrocapillary curves of the inhibiting action of 19 various classes of organic compounds on the corrosion of Fe in 1N  $H_2SO_4$  solution at 20°C has established a regularity in the increase of the inhibiting action upon an increase of the surface activity of the compound introduced into the acid. It was noted that a departure from the regularity found upon comparison with corrosion tests can serve as a basis for a qualitative study of the inhibiting effect of separate functional groups of organic compounds and for the explanation of the process of the inhibition of acid corrosion of metals. An analysis of electrocapillary curves, plotted for Hg in 1N HCl solutions with additions of caffeine,

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Utilization of the Data of Electrocapillary Measurements in the Investigation (cont.)

SOV/137-58-11-23096

sulging, norsulfazole, sulfidine, o-hydroxyquinoline, anthranilic acid, pyramidon, bis (tetramethylsilylmethyl) ethyl-methyl ammonium, and iodide (trimethylsilylmethyl) diethylallylammonium, and the determination of the rate of corrosion of Fe in the same solutions indicated that the existence of a linear relationship between the coefficient of corrosion inhibition and the magnitude of the decrease in the surface tension affords a quantitative determination of the inhibiting effect caused by a compound or by every functional group entering into the make up of that compound. The variation in the inhibiting effect on the metal corrosion caused by the variation in the concentration of an inhibitor can be calculated from the electro-capillary curves and from the inhibition coefficient determined in the presence of one of the additives.

Bibliography: 31 references.

P. S.

Card 2/2



9362  
SOV/81-59-5-15747

5.1140  
Translation from: Referativnyy zhurnal, Khimiya, 1959, Nr 5, p 301 (USSR)

AUTHORS: Origor'yev, V.P., Antropov, L.I.

TITLE: On the Possibility of Increasing the Effective Action of Organic Adsorption Inhibitors in Neutral Mediums

PERIODICAL: Tr. Novocherk. politekhn. in-ta, 1958, Vol 69/83, pp 115 - 128

ABSTRACT: Inhibition of the corrosion rate (C) of steels in synthetic sea water is noted by additions of caffeine, novocaine, thiourea, pyrimidon, mannite, urotropine, PB-8, benzoethylammonia, mono-ethanolaminocarbonate as a result of cathode polarization. The effect observed is explained by a shift of the zero charge potential of the Fe surface (under the action of polarization), in the direction where the possibility of adsorption arises (or where the adsorption becomes more intense) of the cation-active C inhibitors, by the surface of the metal. As a result of the adsorption of the additives, however, the value of the super-tension increases considerably in hydrogen depolarization, which becomes the main path of the cathode discharge in electrochemical

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SOV/81-59-5-15747

On the Possibility of Increasing the Effective Action of Organic Adsorption Inhibitors in Neutral Mediums

C of steel in a neutral medium as a result of additional polarization of the cathode sections by a current applied from without. The combined method developed for protection against C helps to decrease the expenditure of the anode metal in the protector process and the consumption of energy in the protection by means of cathode polarization, and also to increase the effectiveness of the C inhibitor action. ✓

A. Shreyder

Card 2/2

*Antropov, L.I.*  
AUTHORS: Antropov, L.I., Professor, Fedorov, Yu.V., and Chechel', P.S.,  
Engineers 110-4-16/25

TITLE: Direct Copper-plating of Steel Parts in Acid Sulphate Electrolytes with Additives (Pryamoye medneniye stal'nykh izdeliy v kislykh sul'fatnykh elektrolitakh s dobavkami)

PERIODICAL: Vestnik Elektromyshlenosti, 1958, No. 4,  
pp. 49 - 52 (USSR).

ABSTRACT: The cheapest baths of copper sulphate and sulphuric acid cannot normally be used for copper-plating of iron. This is because as soon as iron is put into copper sulphate some of it dissolves and a friable and porous deposit of contact copper is formed which is not well bound to the underlying iron. Contact exchange occurs because of the great difference in the normal exchange potential between iron and copper. Methods of reducing the contact volume current are considered; one is to increase the specific polarisibilities of the solution. So far, this method of suppressing contact exchange by retarding the partial electro-chemical reactions has not been used in plating practice, although it is obviously interesting whenever an electro-positive metal has to be deposited on an electro-negative base. This principle was used in the investigation described in the article.

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Direct Copper-plating of Steel Parts in Acid Sulphate Electrolytes  
with Additives

It was established that just as inhibitors retard the corrosion of metals, so certain surface-active additives retard the rate of contact exchange. When additives are used, retardation is caused by increase of the anode polarisation during dissolution of iron and of cathode polarisation during deposition of copper, as shown graphically in Fig.1. The rate of contact exchange can be reduced so much that it is possible to plate copper directly onto steel parts in acid sulphate baths without using complex cyanates in the electrolyte. The two surface-active substances used are tribenzylamine and thiourea. Using baths with these additives and appropriate current densities and temperatures, good quality copper-plating is obtained on steel. The plating is of much finer structure than that ordinarily obtained from acid electrolytes.

It is particularly important to clean the surface thoroughly; a recommended procedure is given and includes de-greasing, pickling and washing.

A quantitative method was developed for the determination of tribenzylamine and thiourea which is based on the ability of surface-active substances to depress the polarographic maximum.

Card2/3 The method of doing this is explained and illustrated in Fig.2.

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PHASE I BOOK EXPLOITATION SOV/2216

Sqveshchaniye po elektrokhimii. 4th, Moscow, 1956.

Trudy...; [sbornik] (Transactions of the Fourth Conference on Electrochemistry; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 868 p. Errata slip inserted. 2,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk.

Editorial Board: A.N. Frumkin (Resp. Ed.) Academician, O.A. Yesin, Professor; S.I. Zhdanov (Resp. Secretary), B.N. Kabanov, Professor, S.I. Zhdanov (Resp. Secretary); B.N. Kabanov, Professor; Ya. M. Kolotyrkin, Doctor of Chemical Sciences; V.V. Losev, P.D. Lukovtsev, Professor; Z.A. Solov'yeva; V.V. Stender, Professor; and G.M. Florianovich; Ed. of Publishing House: N.G. Yegorov; Tech. Ed.: T.A. Prusakova.

PURPOSE: This book is intended for chemical and electrical engineers, physicists, metallurgists and researchers interested in various aspects of electrochemistry.

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Transactions of the Fourth Conference (Cont.) SOV/2216

COVERAGE: The book contains 127 of the 138 reports presented at the Fourth Conference on Electrochemistry sponsored by the Department of Chemical Sciences and the Institute of Physical Chemistry, Academy of Sciences, USSR. The collection pertains to different branches of electrochemical kinetics, double layer theories and galvanic processes in metal electrodeposition and industrial electrolysis. Abridged discussions are given at the end of each division. The majority of reports not included here have been published in periodical literature. No personalities are mentioned. References are given at the end of most of the articles.

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PART I. THE ELECTRICAL DOUBLE LAYER. ADSORPTION AT THE METAL-SOLUTION BOUNDARY. GENERAL PROBLEMS OF ELECTROCHEMICAL KINETICS AND THE THEORY OF HYDROGEN OVERVOLTAGE.	5

Card 2/34

ANTROPOV, L. I.

"Inhibitors of Metallic corrosion and the Zeta scale of Potentials."

Report submitted for the 1st International Congress of Metallic Corrosion (IUPAC)  
London England, 10-15 April 1961.

Electrochemical Department, Kiev Polytechnical Institute.

SMIRNOV, V.A.; DEMCHUK, L.A.; ANTROPOV, L.I.

Determination of the zero points of diluted sodium amalgams by the  
method of "zero solution." Report No.1. Trudy NPI 133:95-111 '62.  
(MIRA 17:2)



SMIRNOV, V.A.; DEMCHUK, L.A.; SAMARENKO, D.I.; ANTROPOV, L.I.

Determination of the zero points of diluted sodium amalgams by the method  
of "zero solution." Report No.2. Trudy NPI 134165-74 1982.  
(MIRA 17:2)

ANTROPOV, L. I.

"Use of a Correlative or  $\phi$ -scale of Rlectrode Potentials in  
Electrochemical Kinetics."

Report presented at the 14th meeting CITCE, Intl. Comm. of  
Electrochemical Thermodynamics and Kinetics, Moscow, 10-25  
Aug 63.

Polytechnical Institute, Kiev, USSR.

ANTROPOV, L. I.

"Theory of inhibitive action of organic compounds. Some further applications of the  $\phi$  - scale of potentials to the problem of metallic corrosion."

To be submitted at the Second International Congress on Metallic Corrosion in New York, New York, 11-15 Mar 63

Polytechnical Institute, Kiev.

L 12443-63

EWI(1)/BDS/ES(w)-2 AFPTC/ASD/SSD Pub-4

ACCESSION NR: AP3002497

S/0073/63/029/006/0555/0565

AUTHOR: Antropov, L. I.

59

TITLE: Zero points of metals

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 29, no. 6, 1963, 555-565

TOPIC TAGS: zero point of metal, voltage potential

ABSTRACT: The author defines "the potential<sup>1</sup> of an uncharged surface" and "zero point of a metal". He introduces an equation for the calculation of the zero points based on the assumption that the volt-potential at a zero-point is equal to zero. "In conclusion the author wishes to express his debt to V. M. Novakovski for criticisms of the list of problems that were considered in the present work." Orig. art. has: 35 formulas and 1 table.

ASSOCIATION: Kiyevskiy polytekhnicheskii institut (Kiev Polytechnic Institute)

SUBMITTED: 22May62

DATE ACQ: 12Jul63

ENCL: 00

SUB CODE: none

NO REF SOV: 049

OTHER: 004

Card 1/1

L 9900-63 EPF(c)/EPR/EWP(j)/EWP(q)/EWS/EWT(m)--AFPTC/  
ASD--Pr-4/Ps-4/Po-4--RM/MAY/JD  
ACCESSION NR: AP3000410

8/0016/63/037/005/0965/0978

AUTHOR: Antropov, L. I.

TITLE: Application of Phi-potentials to problems of corrosion and protection  
of metals

SOURCE: AN SSSR. Zhurnal Fizicheskoy Khimii, v. 37, no. 5, 1963, 965-978

TOPIC TAGS: metallic corrosion inhibitors, corrosion-proofing of metals,  
organic inhibitors, cathode polarization

ABSTRACT: This article discusses in detail a new method for studying metallic corrosion inhibitors and an examination of some principal features of a combination method for corrosion-proofing of metals which is based on the simultaneous effect of organic inhibitors and cathode polarization. Much of the material contained in this article is based on previous studies which are all cited in the bibliography. Orig. art. has: 16 equations, 7 figures, and 6 tables.

Cord 1/2/

**"APPROVED FOR RELEASE: 06/19/2000**

**CIA-RDP86-00513R000101810020-8**

**APPROVED FOR RELEASE: 06/19/2000**

**CIA-RDP86-00513R000101810020-8"**

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APPROVED FOR RELEASE: 06/19/2000

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I 39257-66 EXT(m)/EXT(j)/T/EXT(t)/EXT LIP(c) RM/WW/JD/WT  
ACC NR: AP6015284 (N) SOURCE CODE: UR/0365/66/002/003/0279/0289

AUTHOR: Antropov, L. I.

ORG: Kiev Polytechnic Institute (Kievskiy politekhnicheskii institut)

TITLE: Mechanism governing the action of inhibitors of acid corrosion of metals.  
Inhibition of iron corrosion in hydrochloric and sulfuric acid solutions by compounds  
of the pyridine series

SOURCE: Zashchita metallov, v. 2, no. 3, 1966, 279-289

TOPIC TAGS: corrosion inhibitor, pyridine, corrosion rate, mercury

ABSTRACT: After discussing the adsorption of inhibitors of the pyridine series on the metal-medium interface and the influence of inhibitors on partial cathodic reactions under conditions of acid corrosion of metals, the author presents experimental data on the influence of inhibitors on the acid corrosion of iron in order to check the formulated concepts of the mechanism of inhibitor action quantitatively. The experiments were carried out on Armco iron in sulfuric acid solutions in the presence of pyridine and a series of its derivatives. The corrosion inhibition coefficient in solutions of nonoxidizing acids was found to be a complex quantity dependent on the ratio of the current of hydrogen evolution to the current of oxygen reduction and on the degree of their change under the influence of the inhibitor. The adsorption of cationic-type organic substances such as those of the pyridine series leads to

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ACC NR: AP6013284

to a comparatively slight filling of the metal surface by the inhibitor particles and to the appearance of an appreciable  $\psi$  potential. Such inhibitors lower the rate of hydrogen evolution mainly because of the  $\psi$  potential, which creates an additional energy barrier for the discharge. In addition to decreasing the corrosion rate, the introduction of such inhibitors should also be manifested in an increase of oxygen depolarization. Comparison of  $\psi$  potentials on iron and mercury for the same charges on these metals and equal volume concentrations of the inhibitor indicates that the adsorbability of the investigated compounds is less on iron. The theoretical concepts formulated in the article permit the interpretation of a large number of experimental relationships established in studies of the inhibiting effect of organic compounds in acid media, and will aid in the selection of inhibitors. Orig. art. has: 1 figure, 4 tables, and 23 formulas.

SUB CODE: 11,13/ SUM DATE: 23Dec65/ ORIG REF: 018/ OTH REF: 017

Card 2/2 HS

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12.8300

69120

SOV/81-59-9-31744

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 9, pp 316 - 317 (USSR)

AUTHORS: Petrenko, A.T., Antropov, L.M.

TITLE: Combined Protection of Iron and Zinc in Acidic Media

PERIODICAL: Sb. kom-t po korrozii i zashchite metallov Vses. sov. nauchno-tekhn. o-v, 1957, Nr 2, pp 82 - 93

ABSTRACT: The effect of corrosion inhibitors of the adsorption type without and with application of cathode polarization on the corrosion rate (CR) of Fe and Zn in an acidic medium (1 n  $H_2SO_4$  and 1 n HCl), has been studied.  $H_2SO_4$ , HCl (acid) and also surface-active additions of the "chemically pure" type were used. Based on preliminary experiments, the following additions were selected: n-tolylthiourea, thiourea, tribenzylamine and sulfate of tetrabutylammonium and anthranilic acid. The electrocapillary curves obtained on mercury in 1 n  $H_2SO_4$  without additions and with additions of surface-active substances show that anthranilic acid and n-tolylthiourea in an acidic medium generate surface-active molecules; tribenzylamine and sulfate of tetrabutylammonium form surface-active cations, and thiourea is analogous to the surface-active anion. It has

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Combined Protection of Iron and Zinc in Acidic Media

SOV/81-59-9-31744

been shown that the data for Fe are described by the equation:  $-\lg J_k = a + b j_n$ , where  $a$  is the negative logarithm of the current density of corrosion ( $C$ ) in the absence of outer polarization,  $b$  the inclination of the straight line to the abscissa axis,  $J_k$  the density of the  $C$  current,  $j_n$  the density of the polarization current. It has been detected that an addition of the anionic type nearly does not change the protective current, but the  $C$  current without outer polarization decreases by 1.7 times, an addition of the molecular type without application of outer polarization decreases CR strongly, being noticeably adsorbed in the case of considerable remoteness of metal from the zero point, an addition of anthranilic acid does not show any effect on the cathode process; additions of the cationic type reduce the current which is necessary for complete protection of the metal more than  $n$ -tolylthiourea does, which is explained by the increase in the adsorption of cation-active  $C$  inhibitors when cathode polarization is applied.

M. Platkov

Card 2/2

RODIGIN, S.P.; ANTROPOV, L.V.

Distributing and regulating D<sub>u</sub>-25mm. block. Lit. proisv. no.6;  
16-18 Je '64. (MIRA 18:5)

ANTROPOV, N.; BORSNCHENKO, I.

[Fiftieth anniversary of U.S.S.R. trade unions; a short history]  
Platuesyatiletie profsoiuzov SSSR; kratkii istoricheski ocherk.  
[Moskva] Ind-vo VTsSPS Profizdat, 1957. 126 p. (MIRA 11:6)  
(Trade unions)

PROKHORCHUK, I.S.; ANTROPOV, N.A.

Training and employing engineering economists at woodworking enterprises. Der. prom. 14 no.5:18-19 My '65.

(MIRA 18:6)

1. Lesotekhnicheskaya akademiya im. S.M. Kirova.

ANTROPOV, N.A.

Investigating the economic effectiveness of the concentration  
of production in sawmilling. Nauch.trudy LTA no.95:73-80 '61.  
(MIRA 16:2)  
(Leningrad Economic Region--Sawmills)

ANTROPOV, Nikolay Alekseyevich; PROKHORCHUK, Iosif Sidorovich;  
GOLUBEVA, T.M., inzh., red.; GRIGOR'YEVA, I.S., red. izd-va;  
BELOGUROVA, I.A., tekhn. red.

[Determining the prospective need for specialists in woodworking industries] Opređenje perspektivnoi potrebnosti v spetsialistakh na derevoobrabatyvaiushchikh predpriatiakh. Leningrad, 1961. 29 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Otklen peredovym opytom. Seria: Derevoobrabatyvaiushchaia promyshlennost', no.12) (MIRA 15:5)  
(Technicians in industry) (Woodworking industries--Management)



ANTROPOV, Nikolay Prokhorovich; ZHELEZNOVA, L.M., red.; RAKOV, S.I.,  
tekhn.red.

[Second All-Russian Congress of Trade Unions] Vtoroi Vserossiiskii  
s"ezd profsoiuzov [Moskva] Izd-vo VTsSPS Profizdat, 1957. 70 p.  
(Trade unions--Congresses) (MIRA 11:2)

ANTROPOV, N.P.; VOSKRESENSKAYA, M.A.; KIRILLOV, I.A.; KULINCHENKO,  
A.A.; BATAYEVA, T.V., kand. ist. nauk, nauchn. red.;  
FILATOVA, I.T., red.; ZAYTSEVA, L.A., tekhn. red.;  
ANDREYEVA, L.S., tekhn.red.

[Trade unions of the U.S.S.R.; documents and materials in  
four volumes, 1905-1963] Profsoiuzy SSSR; dokumenty i ma-  
terialy v chotyrekh tomakh (1905-1963 gg.) Moskva, Prof-  
izdat. Vol.2.[Trade unions during the period of the build-  
ing of socialism in the U.S.S.R., October 1917-1937] Prof-  
soiuzy v period postroeniia sotsializma v SSSR; oktiabr'  
1917 g. - 1937 g. 1963. 866 p. (MIRA 17:3)

KIBISOV, Grigoriy Il'ich; ANTROPOV, Nikolay Pavlovich; KUBASOVA, Natal'ya Borisovna; REZVOVA, Mariya Ivanovna; SHALLING, V.A., red.; GVIRTS, V.L., tekhn. red.

[Development and application of a universal method for quantitative spectrum analysis] Opyt razrabotki i primeneniia universal'nogo metoda kolichestvennogo spektral'nogo analiza. Stenogramma doklada na seminar v LDNTP. Leningrad, Leningr. Dom nauchno-tekhn. propagandy, 1961. 53 p. (MIRA 14:9)

(Spectrum analysis)

ANTROPOV, Nikolay Pavlovich; KIBISOV, Grigoriy Il'ich; GRINZAYD,  
Yerlin, red.

[New stand with electrode holders for emission spectrum  
analysis] Novyi shtativ s derzhateliami elektrodov dlia  
emissionnogo spektral'nogo analiza. Leningrad, 1964. 6 p.  
(MIRA 17:7)

133-1-12/24  
AUTHORS: Antropov, O.F., and Sidorov, N.V., Engineers  
TITLE: An Increase in the Durability of Banks of Electric  
Furnaces (Uvelicheniye stoykosti otkosov elektropechey)  
PERIODICAL: Stal', 1958, No.1, pp. 48 - 49 (USSR).

ABSTRACT: With the use of oxygen, the durability of the banks made from the usual magnesite bricks of electric furnaces deteriorated. For this reason, the durability of banks from dense magnesite bricks was tested on a 10-ton electric furnace. The design of the lining is shown in Fig.1. The results of the preliminary tests indicated that the durability of furnace banks, when using oxygen, can be improved by applying dense magnesite or chrome-magnesite bricks and lifting the banks by 130 mm above the usual level. Efforts to increase the durability of the wall blocks by changing the composition of materials (additions of chromite ore, scale) were unsuccessful. There is 1 figure.

ASSOCIATION: Zlatoust Metallurgical Works (Zlatoustovskiy metallurgicheskiy zavod)

AVAILABLE: Library of Congress  
Card 1/1

ASTROPOV, O.F., insh.; GUREVICH, Yu.G., insh.; MOKHIR, Ye.D., insh.

Effect of vacuum refining on steel properties. Izv. vys. ucheb.  
sav.; chern. met. no.12:17-20 D '58. (MIRA 12:3)

1. Zlatoustovskiy metallurgicheskiy zavod i Chelyabinskiy  
politekhniicheskiy institut.  
(Vacuum metallurgy) (Steel--Testing)

MENUSHENKOV, P.P.; KHASIN, G.A.; VACHUGOV, G.A.; KRYLOV, S.M.; Prinsipal'nyye uchastnye:  
KOLYASHNIKOVA, R.I.; POCHKOVSKIY, R.A.; ANTROPOV, O.F.

Improving the macrostructure and reducing nonmetallic inclusions in the  
electric slag refining of alloyed steel. Stal' 23 no.12:1110-1112 D  
'63. (MIRA 17:2)

1. Zlatoustovskiy metallurgicheskiy zavod.

GAVRILOV, O.T.; TOYASHINOV, V.A.; SHALIKOV, A.G.; DOLININ, D.P.; KHASIN, G.A.;  
KOLIASHNIKOVA, R.I.; SAYENOV, L.I.; Principal assistants: KRYLOV, S.M.;  
ANTROPOV, O.F.; VIKSLER, G.D.; SHVED, F.I.

Quality of ball-bearing steel made by vacuum arc remelting. *Stal'*  
24 no.9:836-839 S '64. (MIRA 17:10)

1. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metalurgi  
imeni I.P. Bardina i Zlatoustovskiy metallurgicheskiy zavod.



L 04315-67 EWT(m)/EWP(t)/ETI IJP(c) JD  
 ACC NR: AP6018387 (A) SOURCE CODE: UR/0133/66/000/006/0522/0522

AUTHORS: Antropov, O. F. Ustin, K. P.

ORG: none

TITLE: Development and improvement in production process for thermally stable alloys by vacuum arc smelting, for products with improved serviceability (UkrNIIsnetsal')

SOURCE: Stal', no. 6, 1966, 522

TOPIC TAGS: thermal stability, alloy, vacuum arc furnace, metallurgy, electrode design / EI437B alloy

ABSTRACT: Advantages of the use of cast electrodes over forged ones are described in the preparation of EI437B alloy by vacuum smelting. The process is simplified and the manufacturing cost of the rods is lowered. The optimal uniformity of macrostructure is obtained during smelting at I = 4.5 kiloamperes and U = 24.5--25.0 v. At these conditions the pilot plant wastes can be lowered from 20 to 10--12%.

SUB CODE: 11.13 / SUM DATE: none

Cord 1/2 gl

UDC: 669.187.2.083.4.621.365.2.001.5

ANTROPOV, N.P., inzhener.

Continued operation of a generator with a grounded phase. Elek.sta. 24 no.8:  
54-55 Ag '53. (MLBA 6:8)  
(Dynamoa)

ANTROPOV, N.P., inzhener (Kalininenergo)

Necessary explanation. Elektrichestvo no.6:95 Jo '56. (MLRA 9:9)  
(Electric engineering--Laboratory manuals)

AUTHOR: Antropov, N.P., Technician 91-58-8-22/31

TITLE: Using a Hydrogen Plant (Ekspluatatsiya vodorodnoy startsi)

PERIODICAL: Energetik, 1958, Nr 3, pp 28-29 (USSR)

ABSTRACT: The operating instructions supplied with the SEU-4 hydrogen generating apparatus, built by the 'Uralkhimmash' Plant, are very sketchy and deal mainly with the starting of the apparatus. The author imparts the results of his experience with the machine. A valve fitted into the atmospheric line cut down hydrogen leaks. Operating at 300 amperes, the apparatus produced 4 cu m per hr. At this load, if the apparatus is inadequately supplied with cooling water, abnormally high working temperatures develop in the electrolyte. This can be cured by switching one of the two generator engines off temporarily and maintaining the same water-cooling supply. Details of the starting procedure and of a heater are given. It was found that the density of the electrolyte gradually decreases as part is carried away with the gases in the form of mist. It must

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Using a Hydrogen Plant

91-58-8-22/14

be topped up from time to time. There is one schematic diagram.

1. Industrial plants--USSR 2. Hydrogen--Production 3. Gas  
generating systems--Operation

Card 2/2

ANTROPOV, N.P., inzh.

Organisational and technical problems in the operation of  
power systems. Elek.sta. 29 no.1:6-7 Ja '58. (MIRA 11:2)  
(Electric power distribution)

ANTROPOV, N.P., insh.

Centralized repair of electric equipment at electric power stations.  
Elek. sta. 31 no.3:93-94 Mr '60. (MIRA 13:8)  
(Electric power stations)

ANTROPOV, N.P., inzh.

Removal of oil from a generator by blowing it out with hot  
air. Elek. sta. 31 no.9:76-77 S '60. (MIRA 14:10)  
(Turbogenerators)



KIBISOV, G.I.; ANTROPOV, N.P.

Elimination of the effect of the composition of the substance on  
the results of the quantitative spectral analysis. Zhur.anal.khim.  
17 no.2:155-158 Mr-Ap '62. (MIRA 15:4)

1. Institute of Applied Chemistry, Leningrad.  
(Spectrum analysis)

ANTROPOV, Petr Yakovlevich; USPENSKAYA, N.V., redaktor; FURMAN, G.V.,  
tekhnicheskii redaktor.

[Mineral resources of the U.S.S.R. and their development in the  
sixth five-year plan] Mineral'no-syr'evaya baza SSSR i ee razvitie  
v shestoi piatiletke. Moskva, -so-vo "Znanie," 1956, 22 p. (Vse-  
soiuznoe obshchestvo po rasprostravleniiu politicheskikh i nauchnykh  
snanii. Ser. 3, no.31) (MIRA 10:10)

1. Ministr geologii i okhrany neдр SSSR (for Antropov)  
(Mines and mineral resources)

ANTROPOV, Petr Yakovlevich; SUKHODEYEV, V., redaktor; CHERNYSHEVA, Yu.,  
redaktor

[Our country's mineral wealth] Bogatstva nedr nashei Rodiny. Moskva,  
Gos. izd-vo polit. lit-ry, 1956. 94 p. (MLRA 9:10)

1. Ministr geologii i okhrany nedr SSSR (for Antropov)  
(Mines and mineral resources)

ANTHROPOL: P. Ya.

Prospecting for radioactive ores. IUn. tekhn. no. 1:20-21 8 '56.  
(MIRA 10:3)

1. Minister geologii i oknyan nede SSSR.  
(Uranium ores) (Thorium)

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 2, 15-57-2-1195  
p 1-2 (USSR)

AUTHOR: Antropov, P.

TITLE: Some Problems in Theoretical and Applied Geology  
(Nekotoryye zadachi geologicheskoy nauki i praktiki)

PERIODICAL: Kommunist, 1956, Nr 13, pp 46-55

ABSTRACT: The article notes the successes attained by the Soviet geologists in uncovering various mineral resources during the completed five-year plan, and enumerates the problems still facing the Geological Service of the USSR. The solution of all the problems assigned to the sixth five-year plan will call for continuing active cooperation between the practicing geologists and those working in academic and higher educational institutions. It will also be necessary to establish and reorganize the work of the academic and industrial institutions which deal with the complex study of the USSR territory, with the special study of the intermontane depressions

Card 1/2

Some Problems in Theoretical and Applied Geology (Cont.) 15-57-2-1195

and flexures, with the study of the peripheral zones of the country (carried out jointly with the geologists of other countries) and with the construction of projected maps for predicting the occurrence of all forms of mineral resources. All exploratory and prospecting geological efforts (except for the exploitational investigations in mines and ore deposits) should be unified within one department--the Ministry of Geology and Conservation of Resources, USSR. It has also become necessary to terminate the present organizational dispersal of specialists in geology, geophysics, and geochemistry within the structure of the Academy of Science, USSR. This action will do away with the existing serious delays in completing a number of important scientific problems dealing with the theory of ore formation and the distribution of mineral resources on the USSR territory, with the theory of geochemical exploration for mineral raw materials, and with the improvement of the existing and the development of the new and more definitive methods (especially the geophysical ones) of exploration and prospecting for the deep, subsurface sources.

Card 2/2

G. I. D.

ANTROPOV, P.Ya.

Geological maps of the U.S.S.R. Nauka i zhizn' 23 no.3:4-7 Nr '56.  
(MLRA 9:7)

1.Ministr geologii i okhrany nedr SSSR.  
(Geology--Maps) (Russia--Industries)

ANTROPOV, P.IA. glavnyy redaktor; LUPPOV, N.P., redaktor; SUKACHEVA, M.P.,  
redaktor; KHROMOVA, L.V., redaktor; KRASHOVA, N.E., redaktor  
izdatel'stva; POPOV, M.D., tekhnicheskii redaktor

[Geology of the U.S.S.R.] Geologiya SSSR. Glav.red. P.IA.Antropov.  
Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane neдр.  
Vol.22 [The Turkmen S.S.R.] Turkmenskaya SSR. Pt.1. [Geological  
discription] Geologicheskoe opisanie. Red.N.P.Lupov. 1957. 658 p.

1. Russia (192)- U.S.S.R.) Ministerstvo geologii i okhrany  
neдр. (MLRA 10:6)

(Turkmenistan--Geology)



136-10-2/13

AUTHOR: Antropov, P.Ya.

TITLE: The Mineral-Raw-Materials Base of the Non-Ferrous Metallurgy of the USSR at the Fortieth Anniversary of the Great October Socialist Revolution (Mineral'no-syr'yevaya baza tsvetnoy metallurgii SSSR k sorokaletiyu velikoy oktyabr'skoy sotsialisticheskoy revolyutsii)

PERIODICAL: Ts-vetnyye Metally, 1957, Nr 10, pp.9-14 (USSR)

ABSTRACT: In this article the prospecting work for non-ferrous metal minerals which has been carried out in the forty years of the Soviet regime is outlined, the main deposits being briefly described. Among the tasks recommended for the sixth five-year plan are intensive prospecting in the Ural, Kazakhstan, Western Siberia and Krasnoyarsk regions for gold (an activity which has been comparatively neglected), the avoidance of inter-departmental barriers to research and the elimination of metal losses in tailings (to the prevalence of which academician K.I.Satpayev has drawn attention).

AVAILABLE: Library of Congress.

Card 1/1

132-11-1/7

AUTHOR: Antropov, P.Ya., Minister of Geology and Conservation of  
Natural Resources of the USSR

TITLE: Most Important Results of Geologic Prospecting in the USSR on  
the Occasion of the 40th Anniversary of the Great October Re-  
volution (Vazhneyshiye rezultaty geologorazvedochnykh rabot v  
SSSR k sorokaletney godovshchine Velikogo OKtyabrya)

PERIODICAL: Razvedka i okhrana nedr, 1957, No 11, pp 1-7 (USSR)

ABSTRACT: While little attention was paid to geologic prospecting in  
Russia before the advent of Communism, the present Soviet re-  
gime employs tens of thousands of highly qualified geologists-  
prospectors, hydro-geologists, minerologists and physicists.  
More geologists graduate at the present time from Soviet  
educational institutes than from any of the capitalist coun-  
tries. Large deposits of the most important natural resources,  
such as iron and manganese ores, chromites, coal, oil, potas-  
sium and others were found by systematic prospecting. New ore  
deposits are being located every year, and the natural re-  
sources in the USSR exceed the present requirements. Based on  
natural resources, giant heavy industrial trusts were founded,  
such as the metallurgical combines at Magnitogorsk and Kuznetek

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132-11-1/7

Most Important Results of Geologic Prospecting in the USSR on the Occasion of the 40th Anniversary of the Great October Revolution

(Magnitogorskiy i Kuznetskiy metallurgicheskiye kombinaty), the copper smelters at Balkhash (Balkhashskiy medeplavil'nyy zavod), the South Ural and North Ural nickel combines (Yuzhno-Uralskiy, Severo-Uralskiy nikelovye kombinaty), the lead smelters at Chikent (Chikentskiy svintsovoplavil'nyy zavod) and the Central Ural copper smelters (Sredne-Ural'skiy medeplavil'nyy zavod), the Khibin apatite combine (Khibinskiy apatitovyy kombinat), the Karatau phosphorite combine (Karatauskiy fosforitnyy kombinat) and others. Prospecting operations were resumed after World War II, as a result of which large iron ore deposits were found in the Sokolov-Sarbay area, where a smelting combine with an annual capacity of 15 million tons of iron will be erected in 1960. The mineral base of ferrous metallurgy was considerably broadened in the Gornaya Shora, Kuznetskiy Ala-Tay and Khakasskiy areas, as well as in eastern Siberia and in the Angaro-Ilim iron ore districts. Further explored were the iron ore deposits of the Chita oblast and the Far Eastern kray, where available resources permit the establishment of modern ferrous metallurgical plants. Deposits of magnetite ores of high concentration in close prox-

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132-11-1/7

Most Important Results of Geologic Prospecting in the USSR on the Occasion of the 40th Anniversary of the Great October Revolution

ed and prospecting will be conducted in the following territories: western and eastern Siberia, Far Eastern kray, Central Asiatic republics and especially in the Turkmen SSR. Large copper deposits were found during the last decade in Kazakhstan, Dzheskazgan, Kounradskiy and Boshohukul'. Copper deposits were located in 1954 in the Chita. Oblast and especially in the southern parts of the Ural, where at present large deposits of high concentration are being explored near Gaysk. New lead-zink deposits were found in the territories of central and southern Kazakhstan, the Central Asiatic republics and other places. Excellent results were obtained by geologists at prospecting for tungsten and molybdenum in eastern Siberia, Krasnoyarsk Kray, Kazakhstan, Central Asiatic Republics, north and Trans-Caucasus. The Tadzhik SSR leads in the production of antimony. The requirements for tin were speedily met by developing resources in the Yana, Indigirka, Yegekhaya districts, the Primorskiy and Khabarovsk Krays and eastern Siberia. Numerous deposits of rare and diffused elements were found as a result of systematic prospecting, whereby especially rich deposits of lithium were located in the western and eastern

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132-11-1/7

**Most Important Results of Geologic Prospecting in the USSR on the Occasion of the 40th Anniversary of the Great October Revolution**

areas of the country. Large resources for further development of the aluminum, nickel and cobalt industries, are available from deposits on the Kola peninsula, from the Arkhangel'sk Oblast, north Ural, Azerbaijan, the Armenian SSR, West Siberia, Krasnoyarsk kray and other locations. Deposits of phosphorites and apatites are sufficiently large to meet the requirements of the farming industry. After persistent prospecting, diamonds were found in the Yakutsk ASSR, in the basin of the Vilyuy river and its tributaries. Deposits of titanium were found at Samotkansk in the Ukrainian SSR in 1954 and also in north-western Siberia and the Urals. Deposits of zirconium were located lately in the Buryat area in the Buryat-Mongolian ASSR, in conjunction with rutile containing sillimanite layers. In 1957, 12 billion rubles were appropriated for geologic prospecting operations, and 6,000 geologic prospecting teams and expeditions were engaged in the various territories of the USSR.

**ASSOCIATION:** Ministry of Geology and Conservation of Natural Resources of the USSR  
**AVAILABLE:** Library of Congress  
 Card 5/5

ANTROPOV, Petr Yakovlevich; MEL'NIKOVA, N.B., red.; SAVCHENKO, Ye.V.,  
tekhn.red.

[Kursk Magnetic Anomaly; rich iron ore deposits of the Kursk  
Magnetic Anomaly and the outlook for their development]  
Kurskaia magnitnaia anomalii; bogatye zheleznye rudy Kurskoi  
magnitnoi anomalii i perspektivy ikh promyshlennogo osvoeniia.  
Moskva, Izd-vo "Znanie," 1958. 23 p. (Vsesoiuznoe obshchestvo  
po rasprostraneniuiu politicheskikh i nauchnykh snanii. Ser. 8,  
vyp. 2, no.24) (MIRA 12:2)  
(Kursk Magnetic Anomaly--Iron ores)

АНТРОПОВ, Р. Я.

KARGIN, V.A.

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PHASE I BOOK EXPLOITATION

807/1599

Академия наук СССР.

Книжка беллетристики, обзорная статья (Химия и Жизнь) 199 г. (Серия: Академия наук СССР. Книжки-популярные серия) 30,000 копий тиражи.

Составители: О.В. Милошук; Респ. Изд.: А.В. Топчилов, Академия наук СССР. Изд. издательства: В.А. Боярский; Техн. Изд.: И.Б. Боярский.

ПРЕДИСЛОВИЕ. Эта книга предназначена для широкого круга читателей, включая тех, кто имеет базовые знания в химии. Она может служить учебником для преподавателей, учителей, и студентов.

Страна 1/8

# Chemistry of Large Molecules (Cont.)

807/1599

COVERPAGE: This collection of articles reflects the trend for the future development of the Soviet chemical industry as indicated by the 14th plenary session of the Central Committee of the Communist Party within the framework of the new Seven Year Plan. The authors were published in newspapers and journals. The authors are scientists and industry workers, developed the theme of accelerated development of the chemical industry, and sciences, with special emphasis on the manufacture of synthetic fibers, plastics, and other materials. Some of the articles were abridged, revised, or enlarged. The articles were selected so as to give an adequate survey of the chemistry and technology of high-molecular-weight compounds of polymers. This book belongs to the popular-science series of the Academy of Sciences. Similar volumes are intended for future publication. No references are given.

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Preface

### Chemistry of Large Molecules (Cont.)

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Amalia, M.S. Plastics in Agriculture

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Bevile, I.I., and V.A. Muraviev. Use of Plastics in Medicine

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Iofan, B.M. Such Will Be a Plastic House

120

Sapozhnikov, M.M. Plastic Tubes Instead of Metallic

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### PART III

#### RESOURCES FOR THE PREPARATION OF SYNTHETICS

Astrucov, P.Ye. A Powerful Non-metallic Base for the Chemical Industry

221

Berdin, I.P. The Industrialization of Socialist Republics

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Ramodaliyev, Yu. G. Science and the Chemistry Industry

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Sapozhnikov, M.M. Basic Problems of the Development of the Chemical Industry in Kazakhstan

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Card 6/8

12(9) PAGE 2 BOOK DESCRIPTION 809/1788

Abstracts book 808. Metallurgy  
Soviet Union, Ministry of Metallurgy (Soviet Union in Metallurgy)  
Moscow, USSR, 1951. 60 p. 2,000 copies printed.  
Lang. Ed. A. A. Smirnov, Corresponding Member, USSR Academy of  
Sciences; Ed. of Publishing House V. I. Izdatel'stvo, and  
A. I. Izdatel'stvo, Ed. V. I. Polubnyak.

REMARKS: This book is intended for scientific and technical per-  
sonnel in the field of metallurgy.

CONTENTS: This is a collection of articles on certain aspects of  
Soviet metallurgy. The book is dedicated to the 25th birthday  
of the Soviet Union. The book is divided into two parts. The first  
part is divided into three sections: 1. General metallurgy and  
the articles dealing with a brief history of metallurgy and  
prevalence of activity of the Soviet metallurgist. It includes an  
article by I. A. Chumachenko, Nikolai Gerasimov, and I. A. Gerasimov  
describing their meeting with the author in Moscow and also his  
visit to the United States. The second part consists of three  
articles and deals with the materials and tools for the Soviet  
metallurgical industry. The third part represents the major  
portion of the book. It consists of 25 articles dealing with  
the various aspects of the metallurgy of pig iron and steel.  
The fourth part consists of two articles dealing with the metal-  
lurgy of nonferrous metals. The fifth part consists of three  
articles on the forming of metals. The sixth part consists of  
eight articles dealing with certain aspects of physical metallurgy.  
The last part deals with general aspects of metallurgy in the field  
of metallurgy. References are given after each article. In  
percentages are omitted.

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SOURCES OF THE MATERIALS AND PAGES FOR THE  
FOR METALLURGICAL INDUSTRY

- Andreyev, I. N. [Editor for Geology and Conservation of Mineral  
Resources of the USSR]. This book is available in the USSR  
from the Ministry of Metallurgy 17
- Bogdanov, O. A. [Professor, Doctor of Technical Sciences,  
M. V. Leningrad, and M. V. Leningrad (Candidate of Technical  
Sciences, Scientific Research Institute for Mechanical  
Engineering of Metals)]. See Tables in the Dressing  
of Metals and Nonferrous Metal Ore 36
- Bogdanov, I. A. [Corresponding Member, AS USSR, Institute  
of Mineral Processing, AS USSR]. Principles of Continuous Casting 53

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ANTROPOV, P.Ya.

To the editor of "Nauchnye doklady vysshei shkoly." Nauch.dokl.vys.  
shkoly: geol.-geog.nauki no.1:5 '58. (MIRA 12:2)

1. Ministr geologii i okhrany nedr SSSR.  
(Geology--Periodicals) (Geography--Periodicals)

*Antropov, P. Ya.*

132-1-1/15

**AUTHOR:** Antropov, P.Ya., Minister of Geology and Conservation of Mineral Resources of the USSR

**TITLE:** USSR Geologists Endeavor to Carry Out the Resolutions of the 20th Party Congress of the KPSS (Geologi sovetskogo soyuza v bor'be za realizatsiyu resheniy XX s"yezda KPSS)

**PERIODICAL:** Razvedka i Okhrana Nedr, 1958, # 1, pp 1-7 (USSR)

**ABSTRACT:** According to the resolutions of the 20th Party Congress, prospecting for mineral resources has to be intensified. Special emphasis must be put on prospecting for valuable minerals, such as iron and nickel ores of high concentration, copper, bauxite, titanium, manganese, phosphorites, boron, lead, tin, molybdenum, mercury, crude oil and coal deposits. Additional mineral resources to meet the requirements of industry can be made available by developing the eastern deposits.

The development of large diamond fields in the Yakutsk ASSR is a result of the work of Soviet geologists. Preparations for commercial exploitation of these deposits will soon be completed. The discoverers of these deposits, A.P. Burov, G.K. Yurkevich, G.Kh. Faynstein, V.B. Belov, B.M.

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132-1-1/15

USSR Geologists Endeavor to Carry Out the Resolutions of the 20th Party Congress of the KPSS

Shchukin and Yu.I. Khabardin, were awarded the Lenin prize.

Coal prospecting resulted in discoveries of new deposits and new coal basins, such as the South Yakutsk basin with estimated coal deposits of 40 billion tons. The total coal resources of the USSR were estimated in January 1957 to amount to 8,699 billion tons, or 57% of the total coal resources of the world. Large deposits of tin were discovered in 1954 in the coastal territories. These may become an important basis for the tin producing industries.

Very promising placer-gold deposits were found in the Magadan Oblast', extending from the boundaries of the Yakutsk ASSR to the Bering Sea and the Arctic Ocean.

The largest iron ore basin in the world was discovered in the Belgorod-Oboyan area in 1954. This basin is estimated to contain 700 million tons of high grade ore.

Titanium-zirconium deposits, large enough to meet demands for some time, were located in 1955 in the Samotkansk area. Deposits of titanium were also discovered in the territory of the Ukrainian SSR in 1956-1957.

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Large scale prospecting conducted during the last two years of the 6th 5-Year-Plan yielded numerous deposits of valuable minerals in the eastern part of the USSR. Rich deposits of molybdenum and copper were found in the Chita Oblast'. Large deposits of sillimanite in the Buryat-Mongolian ASSR can be exploited by using the hydroelectric resources of the Angara River. Geologists of the Irkutsk Geologic Administration were successful in locating very rich deposits of rare metals in the Sayan Mountains in 1957. Also in 1957, geologists of the Georgian Geologic Administration discovered traces of manganese, indicating that there are large deposits in this republic. In 1957, geologists of the Armenian Geologic Administration found deposits of iron and gold. Interesting prospecting results were obtained by geologists in Kazakhstan, where in 1957 large deposits of copper, mercury, bauxites, lead and zinc were found. Several new deposits of mercury were located in the Kirgiz SSR, and the prospects for future production from operating mines were improved. Natural gas was found in Mesozoic deposits of the Lena River in 1957, in the

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Yakutsk ASSR, at the Berezovo deposit of west Siberia, and also in the Bukharo-Khivinsk depression in the Uzbek SSR. The first deposits of crude oil located in 1957, were in the Moldavian SSR.

The Turgay depression and the regions adjacent to the Caspian Sea deserve special attention with regard to deposits of crude oil. Good results obtained in prospecting for oil in west European countries by complex geophysical methods necessitates the checking of already prospected areas of the USSR with up-to-date methods. In 1957, tremendous iron ore deposits of sedimentary nature were found in the Tomsk and Omsk districts, together with deposits of titanium and zirconium.

According to preliminary estimates, annual production of different branches of national economy should be increased during the next 15 years as follows: pig iron to 75-85 million tons; steel to 110-120 million tons; crude oil to 350-400 million tons, natural gas to 270-320 billion cu m, anthracite to 650-750 million tons; and cement to 90-110 million tons.

The problem of water supply arises in connection with industrial growth. Hydrogeological and geological orga-

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nations will be established to deal with prospecting, utilization and preservation of water resources.

Complying with the resolution of the February session of the TsK KPSS, all work pertaining to geologic surveying and prospecting will be the responsibility of the Ministry of Geology and Conservation of Natural Resources. Besides the necessity for larger scale hydrogeologic maps, the urgent tasks for further improving geological prospecting work are:

- 1) Extensive use of modern drilling equipment. 2) Designing of new efficient rigs for drilling to depths of 2,000 m.
- 3) Designing of light weight mining and prospecting equipment.
- 4) Improving drilling operations and introducing new geophysical methods. 5) Designing of face engines for drilling small caliber holes and finding of new efficient methods for crushing rocks in drill holes by means of ultra sound waves, etc. 6) Development of sensitive and efficient geophysical devices.

AVAILABLE:  
Card 5/5

Library of Congress

ANTROPOV, P.Ya.

Achievements of geological prospecting in the Chinese People's  
Republic. Sov.geol. 1 no.12:3-12 D '58. (MIRA 12:4)

1. Ministerstvo geologii i okhrany nedr SSSR.  
(China--Mines and mineral resources)

26-58-7-3/48

AUTHOR: Antropov, P.Ya., Minister of Geology and Conservation of  
Natural Resources of the USSR

TITLE: The Kursk Magnetic Anomalies (Kurskiye magnitnye anomalii)

PERIODICAL: Priroda, 1958, Nr 7, pp 16-23 (USSR)

ABSTRACT: In 1930, a research organization for the study of the Kursk Magnetic Anomalies was established, headed by Academician I.M. Gubkin. Eminent scientists such as P.P. Lazarev, A.D. Arkhangel'skiy, etc, assisted. Recent data show that the region of the Kursk Magnetic Anomalies consists of a complex of metamorphic rocks of proterozoic origin. These pre-Cambrian rocks were successively covered by a layer of deposits from paleo-, meso- and cenozoic epochs, measuring between 40 and 500 m in thickness. The entire region is unique with respect to its iron ore deposits, especially the rich layers opened in 1949 in Mikhaylovka, 90 km northwest from Kursk, and those of Belgorod, under investigation since 1953. The Mikhaylovka deposits are seams 15 m thick embedded in quartz. They have an iron content of about 55% and are at a mean depth of 90 to 100 m. The estimated amount is about 400 million tons of rich ores that can be increased

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to 500 to 600 million tons, while the iron-containing quartzites are about 3.7 billion tons. The Belgorod iron ore area comprises about 3,000 sq km. The rich seams are at a depth of 400 to 550 m. The iron content is up to 64%. The total amount of iron ore in the Belgorod Oblast' is estimated at 15 to 20 billion tons. The hydrogeological conditions of the area, however, are difficult. The Ministerstvo geologii i okhrany nedr SSSR (Ministry of Geology and Conservation of the Natural Resources of the USSR) thinks that these difficulties can be overcome. Hundreds of millions of tons of iron ore have also been established in other nearby regions, such as Staro-Oskol'skiy with its many deposits. Deposits being exploited at the present time, permit an annual production of 70 to 80 million tons of rich ore in the European part of the USSR, which corresponds to 30 to 35 million tons of cast iron. In 1957, the USSR mined 84.2 million tons of iron ore and produced 37 million tons of cast iron. The Institut gornogo dela AN SSSR (USSR Mining Institute) will play the foremost role in the development of a mining technology for iron ore mining at about 500 m depths under great hydrogeological difficulties, in order to expand considerably present mining production.

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There is 1 chart, 1 photo and 4 diagrams.

1. Geology--USSR
2. Magnetism--Phenomena

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ANTROPOV, Petr Yakovlevich; OSADA, P.A., red.; PONOMAREVA, A.A., tekhn.red.

[Prospects for the utilization of natural resources of the U.S.S.R.  
in 1959-1965] Perspektivy osvoeniia prirodnnykh bogatstv SSSR,  
1959-1965. Moskva, Gosplanizdat, 1959. 157 p. (MIRA 12:11)  
(Russia--Geological surveys)

SOV/132-59-1-1/18

AUTHOR: Antropov, P.Ya., Minister of Geology and Conservation of Mineral Resources of the USSR

TITLE: The Geological and Prospecting Works in the Seven Year Plan of the Development of the National Economy of the USSR (Geologorazvedochnyye raboty v semiletнем pláne razvitiya narodnogo khozyaystva SSSR)

PERIODICAL: Razvedka i okhrana nodr, 1959, Nr 1, pp 1-4 (USSR)

ABSTRACT: During the next seven years, the volume of all geological prospecting operations will be increased by 65%. The main task of all geological institutions and organizations is a further development of already existing, and the creation of new, raw mineral bases mainly in the eastern part of the USSR. According to the 7-Year Plan, geological work during 1959 will be mainly concentrated on sharply increased exploratory and prospecting operations in view of finding new oil- and gas-fields and new deposits of non-ferrous and rare metals, especially beryllium, lithium, nickel, mercury and aluminum ores. The author states that the work of different geological scientific

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SOV/132-59-1-1/19  
The Geological and Prospecting Works in the Seven Year Plan of the  
Development of the National Economy of the USSR

institutions is far from satisfactory, especially in the  
elaboration of methods of prospecting for deep mineral  
deposits and in the preparation of prognostic maps for  
the occurrence of such deposits. All the geological  
institutes of the AS of the USSR and of all allied  
republics must critically revise results of their work.  
All prospecting methods must also be revised and  
modernized.

Card 2/2

ANTROPOV, P.Ya.

Principal tasks of geological prospecting to be carried out  
in 1959-1965. Sov.geol. 2 no.1:3-15 Ja '59. (MIRA 12:4)

1. Ministerstvo geologii i okhrany nedr SSSR.  
(Prospecting)

АНТРОПОВ, П.Я.

Current state of geological studies in connection with the seven  
year plan for the development of the Soviet national economy.  
Izv.vys.ucheb.sav.; geol.i razv. 2 no.8:3-16 Ag '59.  
(MIRA 13:4)

1. Ministerstvo geologii i okhrany neдр SSSR.  
(Geology)

ANTROPOV, P.Ya.

Problems in geological prospecting in the light of the decisions  
of the June Plenum of the Central Committee of the CPSU. Sov.  
geol. 2 no.10:3-10 0 '59. (MIRA 13:4)

1. Ministerstvo geologii i okhrany nedr SSSR.  
(Prospecting)

18(5), 7(0), 3(0)

SOV, 50-59-1-8/61

**AUTHOR:** Antropov, P. Ya., Minister of Geology and Protection of Mineral Resources

**TITLE:** Current Problems of Geological Sciences in the Light of Practical Requirements (Aktual'nyye problemy geologicheskoy nauki v svete trebovaniy praktiki)

**PERIODICAL:** Vestnik Akademii nauk SSSR, 1959, Nr 3, pp 45-51 (USSR)

**ABSTRACT:** In this paper the author enumerates the geological problems which must be solved within the 7-year plan. In Eastern Soviet Russia the third metallurgical base shall be established which must be provided with mineralogical raw materials. In this connection the author makes reference to large deposits of iron ore in the Krasnoyarskiy Kray, Irkutskaya Oblast and in the (Soviet) Far East. A large-scale prospecting for petroleum and gas will be made in West and East Siberia, in the (Soviet) Far East and Northwest Russia. The search for deposits of raw materials to be processed in the metallurgical industry, as well as for nonferrous metals and rare elements is to be intensified. For the solution of these problems close co-operation between scientists and experts is indispensable. The theoretical basis for geology must be laid by taking into

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Current Problems of Geological Sciences in the Light of Practical Requirements

account the latest achievements in physics and chemistry. The author criticizes the proceeding of Yu. A. Bilibin and his successors and blames them for serious faults in their work. Further, the author states that the number of deposits which may be exploited by opencast mining decreases more and more and therefore industries must pass over to deposits hard to be detected and exploited. He expresses his dissatisfaction with the lack of importance attached to the investigation of the primary aureole and petrographical-mineralogical methods of investigation. Furthermore, the development of geophysical methods for the location of low-lying deposits is regarded as an important task. The gravimetric and seismic methods must be improved. The present possibilities of physics and chemistry and the achievements of engineering in the field of semiconductors, artificial radioactivity, telemechanics and cybernetics are, according to the author, unsatisfactorily used for the construction of new geophysical instruments and the development of new methods of detection. The level of the methods and technology of geological prospecting must

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SOV/10-19-1-8/61

Current Problems of Geological Sciences in the Light of Practical Requirements  
be raised.

Card 3/3

ANTROPOV, P.Ya.

Principal problems of geology in oil and gas prospecting for  
1959-1965. Geol.nefti i gaza 3 no.1:1-8 Ja '59. (MIRA 12:4)

1. Ministr geologii i okhrany neдр SSSR.  
(Petroleum geology) (Gas, Natural--Geology)

SMIRNOV, V.I.; PROKOF'YEV, A.P.; BORZUNOV, V.M.; DYUKOV, A.I.; ZHDANOV,  
M.A.; LYUBIMOV, I.A.; NEKIPHELOV, V.Ye.; PLOTNIKOV, N.A.;  
ANTROPOV, P.Ya., glavnyy red.; FEDOTOVA, A.I., red.isd-va;  
GUROVA, O.A., tekhn.red.

[Estimation of reserves of mineral deposits] Podschet zapasov  
restorozhdenii poleznykh iskopaemykh. Pod red. V.I.Smirnova i  
A.P.Prokof'eva. Glav.red. P.IA.Antropov. Moskva, Gos.nauchno-  
tekhn.isd-vo lit-ry po geol. i okhrane neдр, 1960. 671 p.  
(MIRA 14:1)

(Mines and mineral resources)

ABDULLAYEV, Kh.M., glavnyy red.; ANTROPOV, P.Ya., red.; AZIZBEKOV, Sh.A., akademik, red.; AFANAS'YEV, G.D., red.; BATALOV, A.B., doktor geol.-mineral.nauk, red.; BELYAYEVSKIY, N.A., doktor geol.-mineral.nauk, red.; KOPTEV-DVORNIKOV, V.S., doktor geol.-mineral.nauk, red.; KUZNETSOV, Yu.A., red.; MAHFUNIN, A.S., kand.geol.-mineral.nauk, red.; NIKOLAYEV, V.A., red.; POLOVINKINA, Yu.I., doktor geol.-mineral.nauk, red.; RUB, M.G., doktor geol.-mineral.nauk, red.; SATPAYEV, K.I., akademik, red.; SEMENENKO, N.P., akademik, red.; KHAMRABAYEV, I.Kh., doktor geol.-mineral.nauk, red.; PANOVA, A.I., red.isd-va; KITAYENKO, L.G., red.isd-va; KALOSHINA, T.V., red.isd-va; IVANOVA, A.G., tekhn.red.

[Magmatic activity and its role in the formation of minerals] Magmatizm i svyaz' s nim poleznykh iskopaemykh; trudy. Moskva, Gos.nauchno-tekhn.isd-vo lit-ry po geol. i okhrane neдр, 1960. 782 p.

(Continued on next card)

(MIRA 13:11)

ABDULLAYEV, Kh.M.--- (continued) Card 2.

1. Vsesoyuznoye petrograficheskoye soveshchaniye. 2d, Tashkent.
2. President Akademii nauk Uzbekskoy SSR (for Abdullayev).
3. Chleny-korrespondenty AN SSSR (for Abdullayev, Afanas'yev, Kuznetsov, Nikolayev).
4. AN Azerbaydzhanskoy SSR (for Azizbekov).
5. AN SSSR (for Satpayev).
6. AN Ukrainskoy SSR (for Semenenko).
7. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii Akademii nauk SSSR (for Afanas'yev, Marfunin, Rub).
8. Inst.geologii Akademii nauk Uzbekskoy SSR (for Batalov).
9. Laboratoriya geologii dokembriya Akademii nauk SSSR (for Nikolayev).
10. Vsesoyuznyy nauchno-issledovatel'skiy geologicheskii institut (for Polovinkina).
11. Institut geologii Akademii nauk Ukrainskoy SSR (for Semenenko).  
(Mineralogy)

АНТРОПОВ, Р.Я.

More about the current state of geological studies. *Izv. vys.*  
ucheb. zav.; geol. i razv. 3 no.7:3-12 J1 '60. (MIRA 13:9)  
(Geology)

ANTROPOV, P.Ya.

Problems in the studies of theoretical principles of oil and gas prospecting in the light of the decisions of the 21st Congress of the CPSU and the June Plenum of the Central Committee of the CPSU. Geol. nefti i gaza 4 no.1:1-6 Ja '60. (MIRA 13:10)

1. Ministr geologii i okhrany nedr SSSR.  
(Petroleum geology) (Gas, Natural--Geology)



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Geologists on the go. Znan.sila 35 no.4:23-25 Ap '60.  
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1. Ministr geologii i okhrany neдр SSSR.  
(Natural resources--Research)

ANTROPOV, P. Ya.

Geologists of Kazakhstan on the 40th anniversary of the republic.  
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1. Ministr geologii i okhrany zems. SSSR.  
(Kazakhstan--Geology, Economic)

ANTROPOV, P.Ya.; BOGATYREV, A.S.; YESKOV, Sh.Ye.; SATPAIEVA, T.A.;  
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Outstanding geologists and Dzherskagan prospector. Vest.AN Kazakh.  
SSR 16 no.10:81-82 0 '60. (MIRA 13:10)  
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ANTROPOV, F.Ya.

Mineral resources in the service of the country. Priroda 49  
no.11:3-13 N '60. (MIRA 13:11)

1. Ministr geologii i okhrany nedr SSSR.  
(Mines and mineral resources)